IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Atty. Docket: WALLACH32

In re Patent of:	)	Conf. No.: 2522
David WALLACH et al.	)	
Patent No.: 7,416,730	)	Washington, D.C.
Issued: August 26, 2008	)	January 23, 2009
For: DERIVATIVES OF THE IL-2 RECEPTOR GAMMA CHAIN, HEIR PRODUCTION AND USE	)	ATTN: Certificate of Correction Division

REQUEST FOR EXPEDITED ISSUANCE OF CERTIFICATE OF CORRECTION UNDER 37 C.F.R. §1.322

Honorable Commissioner for Patents
U.S. Patent and Trademark Office
ATTN: Certificate of Correction Branch
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In checking over the printed copy of the above-identified patent, we have found the following errors that are entirely the fault of the Patent and Trademark Office. It is respectfully requested that these errors be corrected in accordance with 37 CFR §1.322(a) and that the issuance of the certificate be expedited in accordance with MPEP §1480.01. The errors to be corrected are listed below.

The PTO erred by publishing the wrong sequence listing. The sequence listing printed in the patent is the sequence listing filed June 22, 2005, and includes 21 sequences. However, that sequence listing was superseded by

the sequence listing filed with applicant's amendment of November 6, 2006, which listing includes 27 sequences. The new sequence listing filed November 6, 2006, differed from the original by the addition of six new sequences, SEQ ID NOS. 22-27.

We are attaching one copy of the Certificate of Correction form (pages 1-8), showing the correction to the beginning of the sequence listing, printed in the patent at columns 39-40, to show that there are 27 sequences in the listing, and adding the six additional sequences at the end of the sequence, at columns 51-52, which additional sequences should have been published because they were part of the sequence listing filed November 6, 2006, but were not published due to error on the part of the PTO.

In accordance with MPEP §1480.01, this certificate is entitled to expedited issuance as the error is attributable solely to the Office. As proof that unequivocally supports patentee's assertions, attached hereto is the following supporting documentation:

1) A full copy of the amendment filed on November 6, 2006, from the PAIR records of the Office, including the SCORE placeholder sheet for IFW content, indicating that an electronic sequence listing had been filed, and including the receipts proving that the amendment and sequence listing were received.

2) A paper dated November 20, 2006, from the PTO PAIR file for this application, indicating that this sequence listing, with 27 sequences, had been entered.

Accordingly, granting of this request and issuance of the attached certificate of correction on an expedited basis are earnestly solicited.

Respectfully submitted,

BROWDY AND NEIMARK, P.L.L.C.
Attorneys for Applicant(s)

By /rlb/
Roger L. Browdy
Registration No. 25,618

RLB:jhw
Telephone No.: (202) 628-5197
Facsimile No.: (202) 737-3528
G:\BN\I\inl2\Wallach32\Pto\2009-01-22CertCor322PTOFault.doc

RAW SEQUENCE LISTING

EFS

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: 10/511,722A
Source: IFW16
Date Processed by STIC: 11/20/06

ENTERED

IFW16

RAW SEQUENCE LISTING DATE: 11/20/2006
PATENT APPLICATION: **US/10/511,722A** TIME: 13:46:51

Input Set : **N:\efs\10511722a_efs\2006-11-20SequenceListing.txt**
Output Set: **N:\CRF4\11202006\J511722A.raw**

```
      3 <110> APPLICANT: Yeda Research and Development Co. Ltd.
      4       WALLACH, David
      5       SHMUSHKOVICH, Taisia
      6       RAMAKRISHNAN, Parameswaran
      8 <120> TITLE OF INVENTION: Derivatives of the IL-2 receptor Gamma chain, their
preparation
      9       and use
     11 <130> FILE REFERENCE: WALLACH32
     13 <140> CURRENT APPLICATION NUMBER: 10/511,722A
C--> 14 <141> CURRENT FILING DATE: 2005-06-22
     16 <160> NUMBER OF SEQ ID NOS: 27
     18 <170> SOFTWARE: PatentIn version 3.3
     20 <210> SEQ ID NO: 1
     21 <211> LENGTH: 86
     22 <212> TYPE: PRT
     23 <213> ORGANISM: Homo sapiens
     25 <400> SEQUENCE: 1
     27 Glu Arg Thr Met Pro Arg Ile Pro Thr Leu Lys Asn Leu Glu Asp Leu
     28 1               5                  10                  15
     31 Val Thr Glu Tyr His Gly Asn Phe Ser Ala Trp Ser Gly Val Ser Lys
     32             20                  25                  30
     35 Gly Leu Ala Glu Ser Leu Gln Pro Asp Tyr Ser Glu Arg Leu Cys Leu
     36         35                  40                  45
     39 Val Ser Glu Ile Pro Pro Lys Gly Gly Ala Leu Gly Glu Gly Pro Gly
     40     50                  55                  60
     43 Ala Ser Pro Cys Asn Gln His Ser Pro Tyr Trp Ala Pro Pro Cys Tyr
     44 65                  70                  75                  80
     47 Thr Leu Lys Pro Glu Thr
     48                 85
     51 <210> SEQ ID NO: 2
     52 <211> LENGTH: 41
     53 <212> TYPE: PRT
     54 <213> ORGANISM: Homo sapiens
     56 <400> SEQUENCE: 2
     58 Leu Cys Leu Val Ser Glu Ile Pro Pro Lys Gly Gly Ala Leu Gly Glu
     59 1               5                  10                  15
     62 Gly Pro Gly Ala Ser Pro Cys Asn Gln His Ser Pro Tyr Trp Ala Pro
     63             20                  25                  30
     66 Pro Cys Tyr Thr Leu Lys Pro Glu Thr
     67         35                  40
     70 <210> SEQ ID NO: 3
     71 <211> LENGTH: 12
     72 <212> TYPE: PRT
     73 <213> ORGANISM: Homo sapiens
```

RAW SEQUENCE LISTING DATE: 11/20/2006
PATENT APPLICATION: **US/10/511,722A** TIME: 13:46:51

Input Set : **N:\efs\10511722a_efs\2006-11-06SequenceListing.txt**
Output Set: **N:\CRF4\11202006\J511722A.raw**

<400> SEQUENCE: 3
Trp Ala Pro Pro Cys Tyr Thr Leu Lys Pro Glu Thr
1 5 10
<210> SEQ ID NO: 4
<211> LENGTH: 39
<212> TYPE: DNA
<213> ORGANISM: Homo sapiens
<400> SEQUENCE: 4
tgggcccccc catgttacac cctaaagcct gaaacctga 39
<210> SEQ ID NO: 5
<211> LENGTH: 261
<212> TYPE: DNA
<213> ORGANISM: Homo sapiens
<400> SEQUENCE: 5
gaacggacga tgccccgaat tcccaccctg aagaacctag aggatcttgt tactgaatac 60
cacgggaact tttcggcctg gagtggtgtg tctaagggac tggctgagag tctgcagcca 120
gactacagtg aacgactctg cctcgtcagt gagattcccc caaaaggagg ggcccttggg 180
gaggggcctg gggcctcccc atgcaaccag catagcccct actgggcccc cccatgttac 240
accctaaagc ctgaaacctg a 261
<210> SEQ ID NO: 6
<211> LENGTH: 126
<212> TYPE: DNA
<213> ORGANISM: Homo sapiens
<400> SEQUENCE: 6
ctctgcctcg tcagtgagat tcccccaaaa ggaggggccc ttggggaggg gcctggggcc 60
tccccatgca accagcatag cccctactgg gccccccccat gttacaccct aaagcctgaa 120
acctga 126
<210> SEQ ID NO: 7
<211> LENGTH: 37
<212> TYPE: DNA
<213> ORGANISM: Homo sapiens
<400> SEQUENCE: 7
ctcgtcagtg agattgccgc aaaaggaggg gcccttg 37
<210> SEQ ID NO: 8
<211> LENGTH: 37
<212> TYPE: DNA
<213> ORGANISM: Homo sapiens
<400> SEQUENCE: 8
caagggcccc tccttttgcg gcaatctcac tgacgag 37
<210> SEQ ID NO: 9
<211> LENGTH: 35
<212> TYPE: DNA
<213> ORGANISM: Homo sapiens
<400> SEQUENCE: 9
gcccctactg ggccgccgca tgttacaccc taaag 35
<210> SEQ ID NO: 10
<211> LENGTH: 35
<212> TYPE: DNA
<213> ORGANISM: Homo sapiens

RAW SEQUENCE LISTING DATE: 11/20/2006
PATENT APPLICATION: **US/10/511,722A** TIME: 13:46:51

Input Set : **N:\efs\10511722a_efs\2006-11-06SequenceListing.txt**
Output Set: **N:\CRF4\11202006\J511722A.raw**

152 <400> SEQUENCE: 10
153 ctttagggtg taacatgcgg cggcccagta ggggc 35
156 <210> SEQ ID NO: 11
157 <211> LENGTH: 39
158 <212> TYPE: DNA
159 <213> ORGANISM: Homo sapiens
161 <400> SEQUENCE: 11
162 gtcagtgaga ttcccccagc aggaggggcc cttggggag 39
165 <210> SEQ ID NO: 12
166 <211> LENGTH: 39
167 <212> TYPE: DNA
168 <213> ORGANISM: Homo sapiens
170 <400> SEQUENCE: 12
171 ctccccaagg gcccctcctg ctgggggaat ctcactgac 39
174 <210> SEQ ID NO: 13
175 <211> LENGTH: 33
176 <212> TYPE: DNA
177 <213> ORGANISM: Homo sapiens
179 <400> SEQUENCE: 13
180 ggaggggccc ttggggcggg gcctggggcc tcc 33
183 <210> SEQ ID NO: 14
184 <211> LENGTH: 33
185 <212> TYPE: DNA
186 <213> ORGANISM: Homo sapiens
188 <400> SEQUENCE: 14
189 ggaggcccca ggccccgccc caagggcccc tcc 33
192 <210> SEQ ID NO: 15
193 <211> LENGTH: 33
194 <212> TYPE: DNA
195 <213> ORGANISM: Homo sapiens
197 <400> SEQUENCE: 15
198 cagcatagcc cctacgcggc ccccccatgt tac 33
201 <210> SEQ ID NO: 16
202 <211> LENGTH: 33
203 <212> TYPE: DNA
204 <213> ORGANISM: Homo sapiens
206 <400> SEQUENCE: 16
207 gtaacatggg ggggccgcgt aggggctatg ctg 33
210 <210> SEQ ID NO: 17
211 <211> LENGTH: 44
212 <212> TYPE: PRT
213 <213> ORGANISM: Homo sapiens
215 <400> SEQUENCE: 17
217 Trp Leu Glu Arg Thr Met Pro Arg Ile Pro Thr Leu Lys Asn Leu Glu
218 1 5 10 15
221 Asp Leu Val Thr Glu Tyr His Gly Asn Phe Ser Ala Trp Ser Gly Val
222 20 25 30
225 Ser Lys Gly Leu Ala Glu Ser Leu Gln Pro Asp Tyr
226 35 40

RAW SEQUENCE LISTING DATE: 11/20/2006
PATENT APPLICATION: **US/10/511,722A** TIME: 13:46:51

Input Set : **N:\efs\10511722a_efs\2006-11-06SequenceListing.txt**
Output Set: **N:\CRF4\11202006\J511722A.raw**

<210> SEQ ID NO: 18
<211> LENGTH: 81
<212> TYPE: PRT
<213> ORGANISM: Homo sapiens
<400> SEQUENCE: 18

```
His Arg Val Ser Ala Ala Glu Leu Gly Gly Lys Val Asn Arg Ala Leu
1               5                  10                  15
Gln Gln Val Gly Gly Leu Lys Ser Pro Trp Arg Gly Glu Tyr Lys Glu
            20                  25                  30
Pro Arg His Pro Pro Pro Asn Gln Ala Asn Tyr His Gln Thr Leu His
        35                  40                  45
Ala Gln Pro Arg Glu Leu Ser Pro Arg Ala Pro Gly Pro Arg Pro Ala
    50                  55                  60
Glu Glu Thr Thr Gly Arg Ala Pro Lys Leu Gln Pro Pro Leu Pro Pro
65                  70                  75                  80
Glu
```

<210> SEQ ID NO: 19
<211> LENGTH: 324
<212> TYPE: PRT
<213> ORGANISM: Homo sapiens
<400> SEQUENCE: 19

```
Pro Leu Thr Ala Gln Ala Ile Gln Glu Gly Leu Arg Lys Glu Pro Ile
1               5                  10                  15
His Arg Val Ser Ala Ala Glu Leu Gly Gly Lys Val Asn Arg Ala Leu
            20                  25                  30
Gln Gln Val Gly Gly Leu Lys Ser Pro Trp Arg Gly Glu Tyr Lys Glu
        35                  40                  45
Pro Arg His Pro Pro Pro Asn Gln Ala Asn Tyr His Gln Thr Leu His
    50                  55                  60
Ala Gln Pro Arg Glu Leu Ser Pro Arg Ala Pro Gly Pro Arg Pro Ala
65                  70                  75                  80
Glu Glu Thr Thr Gly Arg Ala Pro Lys Leu Gln Pro Pro Leu Pro Pro
                85                  90                  95
Glu Pro Pro Glu Pro Asn Lys Ser Pro Pro Leu Thr Leu Ser Lys Glu
            100                 105                 110
Glu Ser Gly Met Trp Glu Pro Leu Pro Leu Ser Ser Leu Glu Pro Ala
        115                 120                 125
Pro Ala Arg Asn Pro Ser Ser Pro Glu Arg Lys Ala Thr Val Pro Glu
    130                 135                 140
Gln Glu Leu Gln Gln Leu Glu Ile Glu Leu Phe Leu Asn Ser Leu Ser
145                 150                 155                 160
Gln Pro Phe Ser Leu Glu Glu Gln Glu Gln Ile Leu Ser Cys Leu Ser
                165                 170                 175
Ile Asp Ser Leu Ser Leu Ser Asp Asp Ser Glu Lys Asn Pro Ser Lys
            180                 185                 190
Ala Ser Gln Ser Ser Arg Asp Thr Leu Ser Ser Gly Val His Ser Trp
        195                 200                 205
Ser Ser Gln Ala Glu Ala Arg Ser Ser Ser Trp Asn Met Val Leu Ala
    210                 215                 220
```

RAW SEQUENCE LISTING DATE: 11/20/2006
PATENT APPLICATION: US/10/511,722A TIME: 13:46:51

Input Set : N:\efs\10511722a_efs\2006-11-06SequenceListing.txt
Output Set: N:\CRF4\11202006\J511722A.raw

```
323 Arg Gly Arg Pro Thr Asp Thr Pro Ser Tyr Phe Asn Gly Val Lys Val
324 225                 230                 235                 240
327 Gln Ile Gln Ser Leu Asn Gly Glu His Leu His Ile Arg Glu Phe His
328                 245                 250                 255
331 Arg Val Lys Val Gly Asp Ile Ala Thr Gly Ile Ser Ser Gln Ile Pro
332             260                 265                 270
335 Ala Ala Ala Phe Ser Leu Val Thr Lys Asp Gly Gln Pro Val Arg Tyr
336         275                 280                 285
339 Asp Met Glu Val Pro Asp Ser Gly Ile Asp Leu Gln Cys Thr Leu Ala
340     290                 295                 300
343 Pro Asp Gly Ser Phe Ala Trp Ser Trp Arg Val Lys His Gly Gln Leu
344 305                 310                 315                 320
347 Glu Asn Arg Pro
351 <210> SEQ ID NO: 20
352 <211> LENGTH: 357
353 <212> TYPE: PRT
354 <213> ORGANISM: Homo sapiens
356 <400> SEQUENCE: 20
358 Met Leu Lys Pro Ser Leu Pro Phe Thr Ser Leu Leu Phe Leu Gln Leu
359 1               5                   10                  15
362 Pro Leu Leu Gly Val Gly Leu Asn Thr Thr Ile Leu Thr Pro Asn Gly
363             20                  25                  30
366 Asn Glu Asp Thr Thr Ala Asp Phe Phe Leu Thr Thr Met Pro Thr Asp
367         35                  40                  45
370 Ser Leu Ser Val Ser Thr Leu Pro Leu Pro Glu Val Gln Cys Phe Val
371     50                  55                  60
374 Phe Asn Val Glu Tyr Met Asn Cys Thr Trp Asn Ser Ser Ser Glu Pro
375 65                  70                  75                  80
378 Gln Pro Thr Asn Leu Thr Leu His Tyr Trp Tyr Lys Asn Ser Asp Asn
379                 85                  90                  95
382 Asp Lys Val Gln Lys Cys Ser His Tyr Leu Phe Ser Glu Glu Ile Thr
383             100                 105                 110
386 Ser Gly Cys Gln Leu Gln Lys Lys Glu Ile His Leu Tyr Gln Thr Phe
387         115                 120                 125
390 Val Val Gln Leu Gln Asp Pro Arg Glu Pro Arg Arg Gln Ala Thr Gln
391     130                 135                 140
394 Met Leu Lys Leu Gln Asn Leu Val Ile Pro Trp Ala Pro Glu Asn Leu
395 145                 150                 155                 160
398 Thr Leu His Lys Leu Ser Glu Ser Gln Leu Glu Leu Asn Trp Asn Asn
399                 165                 170                 175
402 Arg Phe Leu Asn His Cys Leu Glu His Leu Val Gln Tyr Arg Thr Asp
403             180                 185                 190
406 Trp Asp His Ser Trp Thr Glu Gln Ser Val Asp Tyr Arg His Lys Phe
407         195                 200                 205
410 Ser Leu Pro Ser Val Asp Gly Gln Lys Arg Tyr Thr Phe Arg Val Arg
411     210                 215                 220
414 Ser Arg Phe Asn Pro Leu Cys Gly Ser Ala Gln His Trp Ser Glu Trp
415 225                 230                 235                 240
418 Ser His Pro Ile His Trp Gly Ser Asn Thr Ser Lys Glu Asn Pro Phe
```

RAW SEQUENCE LISTING ERROR SUMMARY DATE: 11/20/2006
PATENT APPLICATION: **US/10/511,722A** TIME: 13:46:52

Input Set : **N:\efs\10511722a_efs\2006-11-06SequenceListing.txt**
Output Set: **N:\CRF4\11202006\J511722A.raw**

Invalid <213> Response:
Use of "Artificial" only as "<213> Organism" response is incomplete, per 1.823(b) of New Sequence Rules. Valid response is Artificial Sequence.

Seq#:23,24,25,26,27

VERIFICATION SUMMARY DATE: 11/20/2006
PATENT APPLICATION: **US/10/511,722A** TIME: 13:46:52

Input Set : **N:\efs\10511722a_efs\2006-11-06SequenceListing.txt**
Output Set: **N:\CRF4\11202006\J511722A.raw**

L:14 M:271 C: Current Filing Date differs, Replaced Current Filing Date

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

ATTY.'S DOCKET: WALLACH32

In re Application of:	)	Art Unit: 1647
	)	
David WALLACH	)	Examiner: C. M. Woodward
	)	
Appln. No.: 10/511,722	)	Washington, D.C.
	)	
Date Filed: June 22, 2005	)	Confirmation No. 2522
	)	
For: DERIVATIVES OF THE IL-2 RECEPTOR GAMMA CHAIN…	)	November 6, 2006

AMENDMENT

Honorable Commissioner for Patents
U.S. Patent and Trademark Office
Customer Service Window
Randolph Building, Mail Stop **Amendment**
401 Dulany Street
Alexandria, VA 22314

Sir:

In response to the Office Action of August 7, 2006, please amend as follows:

Amendments to the Specification begin on page 2 of this paper.

Amendments to the Claims are reflected in the listing of claims which begins on page 16 of this paper.

Amendments to the Sequence Listing begin on page 19 of this paper.

Remarks/Arguments begin on page 20 of this paper.

Attachment: A computer readable copy of the Sequence Listing in ".txt form" is being submitted herewith.

In the Specification

Please replace the paragraph beginning on page 1 at line 10 with the following amended paragraph:

Nuclear factor κB (NF-κB) is a family of inducible eukaryotic transcription factor complexes participating in regulation of immune response, cell growth, and survival [Ghosh et al. 1998]. The NF-κB factors are normally sequestered in the cytoplasmic compartment by physical association with a family of cytoplasmic ankyrin rich inhibitors termed IκB, including IκBα and related proteins [Baldwin et al. 1996]. In response to diverse stimuli, including cytokines, mitogens, and certain viral gene products, IκB is rapidly phosphorylated at serines 32 and 36, ubiquitinated and then degraded by the 26S proteasome, which allows the liberated NF-κB to translocate to the nucleus and participate in target gene transactivation [Mercurio et al 1999, Pahl et al 1999]. Recent molecular cloning studies have identified a multi subunit IκB kinase (IKK) that mediates the signal-induced phosphorylation of IκB. The IKK is composed of two catalytic subunits, IKKα and IKKβ, and a regulatory subunit IKKγ. The catalytic activity of both IKKα and IKKβ can be activated by a multitude of different NF-κB inducers, including the inflammatory cytokines, tumor necrosis factor and

interleukin-1, the T cell receptor and the T cell costimulatory protein, CD28 [Karin et al 2000].

Please replace the paragraph beginning on page 3 at line 16 with the following amended paragraph:

Assessment of the pattern of the NF-κB species in lymphoid organs of *aly/aly* mice indicated that, apart from its role in the regulation of NF-κB complex(s) comprised of Rel proteins (A+p50) and IκB, NIK also participates in controlling the expression/activation of other NF-κB species. Most notably, the lymphocytes of the *aly/aly* mice were deficient of p52, an NF-κB species that is specifically formed in mature B-lymphocytes through proteolytic processing of an inactive precursor, p100 (NF-κB2), suggesting a deficiency in p100 - p52 conversion [Yamada et al. 2000]. Indeed, NIK has been shown to participate in site specific phosphorylation of p100~~. ~~, ~~Both~~both directly ~~end trough posphorylation~~ and through phosphorylation of IKKα, which in turn phosphorylates p100. This phosphorylation serves as a molecular trigger for ubiquitination and active processing of p100 to form p52. This p100 processing activity was found to be ablated by the aly mutation [Xiao et al. 2001, Senftleben et al. 2001].

Please replace the paragraph beginning on page 8 at line 1 with the following amended paragraph:

Mouse and human IL2 both cause proliferation of T-cells of the homologous species at high efficiency. Human IL2 also stimulates proliferation of mouse T-cells at similar

concentrations, whereas mouse IL2 stimulates human T-cells at a lower (sixfold to 170-fold) efficiency. The involvement of IL-2 in autoimmunity is controversial (reviewed by O'Shea et al. 2002) It is recognized that IL-2 administration is associated with a variety of autoimmune disorders such as immune thyroiditis, rheumatoid arthritis and other ~~arthropatics~~ arthropathies. However IL-2 deficient mice produce multiple autoantibodies, including anti-DNA antibodies. About half die of autoimmune haemolytic anemia and the survivors develop inflammatory bowel disease. Importantly, the pathology is corrected by the addition of exogenous IL-2. This indicates a role of IL-2 in maintaining peripheral tolerance.

Please replace the paragraph beginning on page 8 at line 11 with the following amended paragraph:

IL2 is a growth factor for all subpopulations of T-lymphocytes. The IL2R-alpha receptor subunit is expressed in adult T-cell leukemia (ATL). Since freshly isolated leukemic cells also secrete IL2 and respond to it, IL2 may function as an autocrine growth modulator for these cells capable of worsening ATL.

Please replace the paragraph beginning on page 9 at line 16 with the following amended paragraph:

X-linked severe combined immunodeficiency (XSCID) is a rare and potentially fatal disease caused by mutations of IL2Rγ chain, the gene encoding the IL-2R γ chain, a component of multiple cytokine receptors that are essential for lymphocyte development and function (Noguchi et al. 1993). To date, over 100 different mutations of IL2RG resulting in XSCID have been published. Recent gene knock out studies indicate a pivotal role of ~~the cγc~~ this gene in lymphopoiesis [DiSanto et al 1995].

Please replace the paragraph beginning on page 10 at line 1 with the following amended paragraph:

The present invention relates to the use of IL-2 common gamma chain (cγc) (SEQ ID NO: 22) or a mutein, variant, fusion protein, preferably 41MDD (SEQ ID NO:2), 44MPD(SEQ ID NO:17), the intracellular domain of cγc (ICDcγc) (SEQ ID NO:1), 1-357 (SEQ ID NO:20) 1-341(SEQ ID NO:21, functional derivative, circularly permutated derivative or fragment thereof for modulating the interaction between cγc and NIK.

Please replace the paragraph beginning on page 10 at line 8 with the following amended paragraph:

In addition the ~~ivention~~ invention relates to the use of a DNA encoding cγc or a mutein, variant, fusion protein, circularly permutated derivative or fragment thereof, a DNA

encoding the antisense of cγc, an antibody specific to cγc, or a small molecule obtainable by screening products of combinatory chemistry in a luciferase system, for modulating the interaction between IL-2 common gamma chain (cγc) and NIK.

Please replace the paragraph beginning on page 17 at line 15 with the following amended paragraph:

Figure 11 shows the amino acid sequence of the intracellular domain of cγc (SEQ ID NO: 1).

Please replace the paragraph beginning on page 17 at line 16 with the following amended paragraph:

Figure 12 shows the amino acid sequence of the 41 amino acid polypeptide from the membrane distal domain of cγc (41MDD) (SEQ ID NO: 2).

Please replace the paragraph beginning on page 17 at line 20 with the following amended paragraph:

Figure 13 shows the nucleotide sequence of the intracellular domain of cγc (cγcICD) (SEQ ID NO: 5).

Please replace the paragraph beginning on page 17 at line 22 with the following amended paragraph:

Figure 14 shows the nucleotide sequence of the 41 polypeptide from the membrane distal domain of cγc (41MDD) (SEQ ID NO: 6).

Please replace the paragraph beginning on page 17 at line 25 with the following amended paragraph:

Figure 15 shows the sequence of 12 ~~aminoacids~~ amino acids at the C-terminus of cγc involved in binding NIK (SEQ ID NO: 3).

Please replace the paragraph beginning on page 18 at line 21 with the following amended paragraph:

Cγc and NIK interaction was detected using a C-terminal fragment of NIK (624-947) as bait in a two-hybrid screen of a bone marrow cDNA library. This interaction was confirmed by co-immunoprecipitation studies carried out in lysates of mammalian cells overexpressing NIK and cγc and also by co-immunoprecipitation studies in cells naturally expressing NIK and cγc. Immunoprecipitation studies revealed that cγc (SEQ ID NO: 22) is efficiently co-precipitated with either the C-terminus of NIK (624-947) or with the full length of NIK.

Please replace the paragraph beginning on page 19 at line 4 with the following amended paragraph:

Multiple deletion mutants of both cγc and NIK were generated to define the binding domains in both proteins. The interactions were tested by yeast 2 hybrid tests and/or by immunoprecipitation studies (see examples below). Domains of cγc responsible for binding NIK were found in the membrane proximal domain (MPD) of cγc comprising 44 amino acid residues (from residue 282 to 325 of SEQ ID NO: 22), named 44MPD (see SEQ ID NO: 17) and, ~~a~~ in a membrane distal domain (MDD) comprising 41 amino acid (from residues 329 to 369 of SEQ ID NO: 22), named 41MDD (see SEQ ID NO: 2 and Figure 12). When 12 amino acids at the end of cγc (cγc residues 358-369, Fig 15 SEQ ID: NO 3 nucleotide sequence in SEQ ID NO: 4) were deleted from the intracellular domain of cγc (cγcICD), the binding to NIK decreases by 50% indicating that these residues play a major role in binding.

Please replace the paragraph beginning on page 19 at line 14 with the following amended paragraph:

In addition, mutagenesis was carried out in residues located within the 41MDD, to define the specific amino acids interacting with NIK. The interaction of proline rich motifs in signaling proteins with their cognate domains is well documented (Kay BK, Williamson MP, Sudol M. FASEB J 2000 Feb 14 (2): 231-421). 20% of the amino acids in the membrane distal 41 amino acids of cγc are prolines. Therefore, two consecutive prolines

were mutated to alanine at two different sites within the 41 membrane distal amino acids of cγc: 1- PP336,337AA (SEQ ID NO: 23) and 2- PP360,361AA (SEQ ID NO: 24) and the effect of the mutation on binding of NIK tested by the two hybrid assay. The results obtained of cγc mutagenesis demonstrate that the prolines at residues 360 and 361 are important for the binding to NIK. Thus the muteins of the present invention ~~retains~~ retain prolines at residues 360 and 361.

Please replace the paragraph beginning on page 19 at line 26 with the following amended paragraph:

cγc and NIK interaction was shown to be functionally significant. Reporter gene assays showed that cγc modulates NIK-induced NF-κB activation. It is possible, under experimental conditions, to induce NF-κB activation by overexpressing NIK. Activation of NF-κB can be monitored in cells transfected with a construct encoding ~~—lucifrase~~ luciferase under the control of an NF-κB inducible promoter. Using this luciferase system, NF-κB activation was monitored in cells overexpressing NIK alone or together with different concentration of cγc (for details see examples below). It was found that modulation of NF-κB depends on the concentration of NIK vis a vis the concentration of cγc within the cells (NIK/cγc). For example, enhancement of NIK

mediated NF-κB activation was observed when NIK/cγc was above 1 while inhibition of NIK mediated NF-κB activation was observed when NIK/cγc was about equal or below 1.

Please replace the paragraph beginning on page 20 at line 26 with the following amended paragraph:

Progressively C-terminus deleted cγc fragments, 1-357, 1-341, 1-325, 1-303, were tested for their ability to modulate NF-κB mediated by NIK in the luciferase system. For this purpose luciferase expression and activation of NF-κB was measured in transfected cells overexpressing NIK and cγc or cγc deleted mutants at a ratio of about 1. Under these conditions cγc inhibits NF-κB activation induced by NIK. It was found that full length cγc (SEQ ID NO: 22) and fragments 1-357 (SEQ ID NO:20), and 1-341 (SEQ ID NO:21) were able to inhibit NIK mediated NF-κB activation while mutants lacking the NIK binding domain such as 1-325 and 1-303 did not have any effect on the activity of NIK mediated NF-κB activation. The lack of effect of fragments 1-325 and 1-303 confirms the involvement of the membrane distal domain of cγc-NIK interaction and the role of this interaction in NF-κB modulation.

Please replace the paragraph beginning on page 22 at line 4 with the following amended paragraph:

The results obtained revealed that signalling ~~trough~~ through cγc involves NIK and recruitment of signalosome proteins and consequently modulation of NF-κB. Therefore cγc or fragments thereof for example those comprising NIK binding domain such as MDD41 or MPD44 (SEQ ID NO:17) could be used to modulate signalling ~~trough~~ through cγc

Please replace the paragraph beginning on page 23 at line 13 with the following amended paragraph:

The definition "functional derivatives" as herein used refers to derivatives which can be prepared from the functional groups present on the lateral chains of the amino acid moieties or on the terminal N- or C- groups according to known methods and are comprised in the invention when they are pharmaceutically acceptable i.e. when they do not destroy the protein activity or do not impart toxicity to the pharmaceutical compositions containing them. Such derivatives include for example esters or aliphatic amides of the carboxyl-groups and N-acyl derivatives of free amino groups or O-acyl derivatives of free hydroxyl-groups and are formed with acyl-groups as for example ~~alcanoyl~~alkanoyl- or aroyl-groups.

Please replace the paragraph beginning on page 33 at line 16 with the following amended paragraph:

A therapeutic or research-associated use of these tools necessitates their introduction into cells of a living organism. For this purpose, it is desired to improve membrane permeability of peptides, proteins and oligonucleotides. Derivatization with lipophilic structures may be used in creating peptides and proteins with enhanced membrane permeability. For instance, the sequence of a known membranotropic peptide as noted above may be added to the sequence of the peptide or protein. Further, the peptide or protein may be derivatized by partly lipophilic structures such as the above-noted hydrocarbon chains, which are substituted with at least one polar or charged group. For example, lauroyl derivatives of peptides have been described by Muranishi et al., 1991. Further modifications of peptides and proteins comprise the oxidation of methionine residues to thereby create sulfoxide groups, as described by Zacharia et al. 1991. Zacharia and co-workers also describe peptide or derivatives wherein the relatively hydrophobic peptide bond is replaced by its ketomethylene isoester ~~(COCH2)~~ $(COCH_2)$. These and other modifications known to the person of skill in the art of protein and peptide chemistry enhance membrane permeability.

Please replace the paragraph beginning on page 44 at line 1 with the following amended paragraph:

The detection of a specific interaction between two different mammalian proteins in a two-hybrid system in yeast does not necessarily imply that there exists a corresponding interaction between the proteins in a native mammalian environment. Therefore, in order to verify NIK and cγc interaction in a mammalian environment, co-immunoprecipitation studies of NIK and cγc were carried out in lysates of 293-T cells ~~overexpresing~~ overexpressing these proteins (for details see Example 9)

Please replace the paragraph beginning on page 49 at line 13 with the following amended paragraph:

For the generation of the PP336,337AA mutants (SEQ ID NO: 23) the following primers were used:

Please replace the paragraph beginning on page 49 at line 18 with the following amended paragraph:

For the generation of the PP360,361AA mutants (SEQ ID NO: 24) the following primers were used:

Please replace the paragraph beginning on page 49 at line 26 with the following amended paragraph:

For the generation of the K338A mutant (SEQ ID NO: 25) the following primers were used:

Please replace the paragraph beginning on page 50 at line 1 with the following amended paragraph:

For the generation of the E344A mutant (SEQ ID NO: 26) the following primers were used:

Please replace the paragraph beginning on page 50 at line 5 with the following amended paragraph:

For the generation of the W358A mutant (SEQ ID NO: 27) the following primers were used

Please replace the paragraph beginning on page 55 at line 14 with the following amended paragraph:

A cell line was prepared from mouse embryonic fibroblast cells, which are generally known to express the LTβ receptor. 10^5 cells of the above line were seeded per well in 6 well plates. 24 hours later transfection was performed (with Gene porter transfection reagent, Gene therapy systems) with the plasmid pcGST ICcgc expressing the intracellular domain of cγc (cγc ~~IDC~~ ICD) fused to GST or with pcGST41MDD expressing the 41 distal domain of cγc fused to GST and the expression plasmid encoding luciferase reporter protein under the control of an NF-

κB inducible promoter (pcDNA3 luciferase). NF-κB activation was measured indirectly by measuring the luciferase activity present in the cells.

Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-103 (Cancelled).

104 (New). A polypeptide capable of binding to NIK, comprising:

(a) the intracellular domain of cγc (residues 284-369 SEQ ID NO: 22);

(b) a fragment of (a) that retains the ability to bind NIK;

(c) a variant of (a) or (b) maintaining at least 90% identity with a) or b) and retaining the ability to bind NIK;

(d) a salt or functional derivative of (a), (b) or (c) that retains the ability to bind NIK; or

(e) a circularly permutated derivative of (a), (b) or (c) that retains the ability to bind NIK,

wherein said polypeptide contains no more of the sequence of cγc (SEQ ID NO: 22) than the intracellular domain thereof (residues 284-369 of SEQ ID NO: 22).

105 (New). A polypeptide in accordance with claim 104, comprising 41MDD (residues 329-369 of SEQ ID NO: 22).

106 (New). A polypeptide in accordance with claim 104, comprising ICDcγc (residues 284-369 of SEQ ID NO: 22).

107 (New). A polypeptide in accordance with claim 104, comprising the polypeptide of residues 289-369 of SEQ ID NO: 22.

108 (New). A polypeptide in accordance with claim 104, comprising the polypeptide of SEQ ID NO: 23.

109 (New). A polypeptide in accordance with claim 104, comprising the polypeptide of SEQ ID NO: 25.

110 (New). A polypeptide in accordance with claim 104, comprising the polypeptide of SEQ ID NO: 26.

111 (New). A polypeptide in accordance with claim 104, comprising the polypeptide of SEQ ID NO: 27.

112 (New). A DNA encoding a polypeptide in accordance with claim 104.

113 (New). A vector comprising the DNA in accordance with claim 112.

114 (New). A cell comprising a vector in accordance with claim 113.

115 (New). A method for the production of a polypeptide capable of binding to NIK, comprising culturing a cell according to claim 114 and collecting the polypeptide produced.

116 (New). An antibody that specifically recognizes an epitope within the intracellular domain of cyc (residues 284-369 of SEQ ID NO: 22), or an epitope-binding fragment thereof.

117 (New). An antibody or fragment thereof in accordance with claim 116, capable of inhibiting the binding of cγc to NIK.

118 (New). An antibody or fragment thereof in accordance with claim 116, that specifically recognizes an epitope within the sequence of 41MDD (residues 329-369 of SEQ ID NO: 22).

119 (New). An antibody or fragment thereof in accordance with claim 116, wherein said antibody comprises a monoclonal or polyclonal chimeric, fully-humanized, or anti-anti-Id antibody, or an intrabody.

IN THE SEQUENCE LISTING

Please substitute the attached Sequence Listing section for the last filed Sequence Listing.

REMARKS

Claims 104-119 presently appear in this case. No claims have yet been acted upon on the merits. The official action of August 7, 2006, has now been carefully studied. The claims have been subject to a restriction requirement. Reconsideration and withdrawal of the restriction requirement to the extent requested below and examination of all the claims now present in the case are hereby respectfully urged.

The examiner has made a unity of invention restriction requirement. Among the groups are Group II, drawn to a polypeptide fragment; Group III, drawn to a nucleic acid, vector or host cell; and Group V, drawn to an antibody. The examiner states that the groups do not relate to a single general inventive concept under PCT Rule 13.1 because they lack the same or corresponding special technical feature. The examiner states that claim 22 lacks novelty as being anticipated by Sugamura. The examiner states that Sugamura teaches anti-human cγc antibodies capable of inhibiting the binding between IL-2 receptor β and γ chains. This unity of invention restriction requirement is respectfully traversed.

The claims have now been amended to specify that the polypeptide is capable of binding to NIK and comprises the intracellular domain of cγc or a fragment, variant, derivative or circularly permutated derivative thereof that retains the ability to bind NIK. The claim specifies that the polypeptide contains no more of the sequence of cγc than the intracellular domain thereof.

Thus, the present claims do not exclude the extracellular domain of cγc.

Sugamura discloses the full cγc molecule and the portion cited by the examiner at column 10, lines 46-56, relates to ligand interaction, i.e., extracellular events. The antibodies of Sugamura do not bind to the intracellular domain. Thus, nothing in Sugamura anticipates or makes obvious any aspect of the presently claimed invention.

The method of using claims and small molecule claims have now been deleted without prejudice toward the continuation of prosecution thereof in a divisional application. The remaining claims include what the examiner had designated as Groups II, III and V. In order to be responsive, applicant hereby elects Group II, drawn to a polypeptide fragment. Claims 104-111 read on the elected group. However, in view of the fact that all of the present claims share the same or corresponding special technical feature, the restriction requirement should be withdrawn and all of the present claims examined.

The examiner states that in addition to an election of one of the above listed inventions, applicant must elect one corresponding SEQ ID NO. to be searched. In order to be responsive applicant hereby elects the 41MDD polypeptide, which is residues 329-369 of SEQ ID NO: 22.

It has been noted that the present specification includes sequences that are not identified by SEQ ID NOs. In order to facilitate description of these sequences, applicant has added to the sequence listing SEQ ID NO: 22, which is the full

length 369 amino acid cγc protein. Note that the sequences originally filed included the sequence of residue 1-357 of cγc (originally filed SEQ ID NO: 20), as well as the 12 amino acids at the C-terminus of cγc, i.e., residues 358-369 (SEQ ID NO: 3). Thus, the full sequence of 1-369 appeared in the specification as originally filed and new SEQ ID NO: 22 contains no new matter. The specification and claims have now been amended to refer to the various fragments as being fragments of SEQ ID NO: 22, so as to avoid confusion. Furthermore, the mutants appearing in Table 3 have been given their own SEQ ID NOs, 23-27. Many of these mutants are now being claimed.

Applicants have added into the present specification a new paper copy Sequence Listing section according to 37 C.F.R. §1.821(c) as new pages. Furthermore, attached hereto is a file (either on a 3½" disk or in an online text file) containing the "Sequence Listing" in computer readable form in accordance with 37 C.F.R. §1.821(e).

Applicants have amended the specification to insert SEQ ID Nos, as supported in the present specification.

The following statement is provided to meet the requirements of 37 C.F.R. §1.825(a) and 1.825(b).

I hereby state, in accordance with 37 C.F.R. §1.825(a), that the amendments included in the substitute sheets of the sequence listing are believed to be supported in the application as filed and that the substitute sheets of the sequence listing are not believed to include new matter.

I hereby further state, in accordance with 37 C.F.R. §1.825(b), that the attached copy of the computer readable form is the same as the attached substitute paper copy of the sequence listing.

Under U.S. rules, each sequence must be classified in <213> as an "Artificial Sequence", a sequence of "Unknown" origin, or a sequence originating in a particular organism, identified by its scientific name.

Neither the rules nor the MPEP clarify the nature of the relationship which must exist between a listed sequence and an organism for that organism to be identified as the origin of the sequence under <213>.

Hence, counsel may choose to identify a listed sequence as associated with a particular organism even though that sequence does not occur in nature by itself in that organism (it may be, e.g., an epitopic fragment of a naturally occurring protein, or a cDNA of a naturally occurring mRNA, or even a substitution mutant of a naturally occurring sequence). Hence, the identification of an organism in <213> should not be construed as an admission that the sequence *per se* occurs in nature in said organism.

Similarly, designation of a sequence as "artificial" should not be construed as a representation that the sequence has no association with any organism. For example, a primer or probe may be designated as "artificial" even though it is necessarily

complementary to some target sequence, which may occur in nature. Or an "artificial" sequence may be a substitution mutant of a natural sequence, or a chimera of two or more natural sequences, or a cDNA (i.e., intron-free sequence) corresponding to an intron-containing gene, or otherwise a fragment of a natural sequence.

The Examiner should be able to judge the relationship of the enumerated sequences to natural sequences by giving full consideration to the specification, the art cited therein, any further art cited in an IDS, and the results of his or her sequence search against a database containing known natural sequences.

Accordingly, reconsideration and withdrawal of the restriction requirement and prompt examination on the merits and allowance of the claims now present in the case is earnestly solicited.

Respectfully submitted,

BROWDY AND NEIMARK, P.L.L.C.
Attorneys for Applicant(s)

By /rlb/
Roger L. Browdy
Registration No. 25,618

RLB:jmd
Telephone No.: (202) 628-5197
Facsimile No.: (202) 737-3528
G:\BN\I\inl2\Wallach32\Pto\2006-11-06amendment.doc

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of: David WALLACH

Application No.: 10/511,722 Conf. No. 2522

Filed: June 22, 2005

For: DERIVATIVES OF THE IL-2 RECEPTOR GAMMA CHAIN, THEIR...

Art Unit: 1647

Examiner: C. M. Woodward

Washington, D.C.

Atty.'s Docket: WALLACH32

Date: November 6, 2006

THE COMMISSIONER OF PATENTS
U.S. Patent and Trademark Office
Randolph Building, Mail Stop Amendments
401 Dulany Street
Alexandria, VA 22314

Sir:

Transmitted herewith is a [XX] Amendment [ ] _____
in the above-identified application.

[ ] Small Entity Status: Applicant(s) claim small entity status. See 37 C.F.R. §1.27.

[ ] No additional fee is required.

[ ] The fee has been calculated as shown below:

	(Col. 1) CLAIMS REMAINING AFTER AMENDMENT		(Col. 2) HIGHEST NO. PREVIOUSLY PAID FOR	(Col. 3) PRESENT EXTRA EQUALS	SMALL ENTITY RATE	SMALL ENTITY ADDITIONAL FEE	OR	OTHER THAN SMALL ENTITY RATE	OTHER THAN SMALL ENTITY ADDITIONAL FEE
TOTAL	* 16	MINUS	** 123	0	x 25	$		x 50	$
INDEP.	* 3	MINUS	*** 33	0	x 100	$		x 200	$
FIRST PRESENTATION OF MULTIPLE DEP. CLAIM					+ 180	$		+ 360	$
					ADDITIONAL FEE TOTAL	$	OR	TOTAL	$

* If the entry in Col. 1 is less than the entry in Col. 2, write "0" in Col. 3.

** If the "Highest Number Previously Paid for" IN THIS SPACE is less than 20, write "20" in this space.

*** If the "Highest Number Previously Paid for" IN THIS SPACE is less than 3, write "3" in this space.

The "Highest Number Previously Paid For" (total or independent) is the highest number found from the equivalent box in Col. 1 of a prior amendment of the number of claims originally filed.

[XX] Conditional Petition for Extension of Time

If any extension of time for a response is required, applicant requests that this be considered a petition therefor.

[XX] It is hereby petitioned for an extension of time in accordance with 37 CFR 1.136(a). The appropriate fee required by 37 CFR 1.17 is calculated as shown below:

Small Entity			Other Than Small Entity		
Response Filed Within			Response Filed Within		
[ ]	First	- $ 60.00	[ ]	First	- $ 120.00
[ ]	Second	- $ 225.00	[XX]	Second	- $ 450.00
[ ]	Third	- $ 510.00	[ ]	Third	- $ 1020.00
[ ]	Fourth	- $ 795.00	[ ]	Fourth	- $ 1590.00
Month After Time Period Set			Month After Time Period Set		

[ ] Less fees ($_____) already paid for ___ month(s) extension of time on _____.

[ ] Please charge my Deposit Account No. 02-4035 in the amount of $_____.

[XX] Credit Card Payment Form, PTO-2038, is attached, authorizing payment in the amount of $ 450.00.

[ ] A check in the amount of $_____ is attached (check no.).

[XX] The Commissioner is hereby authorized and requested to charge any additional fees which may be required in connection with this application or credit any overpayment to Deposit Account No. 02-4035. This authorization and request is not limited to payment of all fees associated with this communication, including any Extension of Time fee, not covered by check or specific authorization, but is also intended to include all fees for the presentation of extra claims under 37 CFR §1.16 and all patent processing fees under 37 CFR §1.17 throughout the prosecution of the case. This blanket authorization does not include patent issue fees under 37 CFR §1.18.

BROWDY AND NEIMARK, P.L.L.C.

Attorneys for Applicant(s)

Facsimile: (202) 737-3528
Telephone: (202) 628-5197

By: /rlb/
Roger L. Browdy
Registration No. 25,618

DocCode – SEQLIST

SCORE Placeholder Sheet for IFW Content

Application Number: 10511722 Document Date: 11/06/2006

The presence of this form in the IFW record indicates that the following document type was received in electronic format on the date identified above. This content is stored in the SCORE database.

- Sequence Listing

Since this was an electronic submission, there is no physical artifact folder, no artifact folder is recorded in PALM, and no paper documents or physical media exist. The TIFF images in the IFW record were created from the original documents that are stored in SCORE.

To access the documents in the SCORE database, refer to instructions developed by SIRA.

At the time of document entry (noted above):

- Examiners may access SCORE content via the eDAN interface.
- Other USPTO employees can bookmark the current SCORE URL (http://es/ScoreAccessWeb/).
- External customers may access SCORE content via the Public and Private PAIR interfaces.

Form Revision Date: February 8, 2006

Electronic Patent Application Fee Transmittal

Application Number:	10511722
Filing Date:	22-Jun-2005
Title of Invention:	Derivatives of the il-2 receptor gamma chain, their production and use
First Named Inventor/Applicant Name:	David Wallach
Filer:	Roger Lowen Browdy/Janet Dorgan
Attorney Docket Number:	WALLACH32

Filed as Large Entity

U.S. National Stage under 35 USC 371 Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 2 months with $0 paid	1252	1	450	450

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
			Total in USD ($)	**450**

Electronic Acknowledgement Receipt

EFS ID:	1295438
Application Number:	10511722
International Application Number:	
Confirmation Number:	2522
Title of Invention:	Derivatives of the il-2 receptor gamma chain, their production and use
First Named Inventor/Applicant Name:	David Wallach
Customer Number:	1444
Filer:	Roger Lowen Browdy/Janet Dorgan
Filer Authorized By:	Roger Lowen Browdy
Attorney Docket Number:	WALLACH32
Receipt Date:	06-NOV-2006
Filing Date:	22-JUN-2005
Time Stamp:	16:00:37
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	yes
Payment was successfully received in RAM	$450
RAM confirmation Number	278
Deposit Account	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)	Multi Part /.zip	Pages (if appl.)

1		2006-11-06amendment.pdf	136588	yes	24

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Amendment - After Non-Final Rejection	1	1
Specification	2	15
Claims	16	18
CRF Statement Paper and CRF are the same	19	19
Applicant Arguments/Remarks Made in an Amendment	20	24

Warnings:					
Information:					
2	Sequence Listing	2006-11-06SequenceListing.txt	21420	no	0
Warnings:					
Information:					
3	Miscellaneous Incoming Letter	2006-11-06CoverAmendment.pdf	88127	no	1
Warnings:					
Information:					
4	Fee Worksheet (PTO-875)	fee-info.pdf	8188	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	254323		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

PTO/SB/44 (09-07)
Approved for use through 08/31/2010. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.
(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,416,730

APPLICATION NO.: 10/511,722

ISSUE DATE : August 26, 2008

INVENTOR(S) : WALLACH et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Please correct at columns 39-40 under SEQUENCE LISTING at line <160>, after "NUMBER OF SEQ ID NOS:", delete "21" and insert --27--.

At columns 51-52, after the last line of the sequence listing, please insert the following:

<210> 22
<211> 369
<212> PRT
<213> Homo sapiens

<400> 22
Met Leu Lys Pro Ser Leu Pro Phe Thr Ser Leu Leu Phe Leu Gln Leu
1 5 10 15

Pro Leu Leu Gly Val Gly Leu Asn Thr Thr Ile Leu Thr Pro Asn Gly
20 25 30

Asn Glu Asp Thr Thr Ala Asp Phe Phe Leu Thr Thr Met Pro Thr Asp
35 40 45

Ser Leu Ser Val Ser Thr Leu Pro Leu Pro Glu Val Gln Cys Phe Val
50 55 60

Phe Asn Val Glu Tyr Met Asn Cys Thr Trp Asn Ser Ser Ser Glu Pro
65 70 75 80

Gln Pro Thr Asn Leu Thr Leu His Tyr Trp Tyr Lys Asn Ser Asp Asn
85 90 95

MAILING ADDRESS OF SENDER (Please do not use customer number below):

BROWDY AND NEIMARK, P.L.L.C.
624 Ninth Street, NW, Suite 300
Washington, D.C. 20001-5303

PTO/SB/44 (09-07)
Approved for use through 08/31/2010. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.
(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,416,730

APPLICATION NO.: 10/511,722

ISSUE DATE : August 26, 2008

INVENTOR(S) : WALLACH et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Asp Lys Val Gln Lys Cys Ser His Tyr Leu Phe Ser Glu Glu Ile Thr
100 105 110

Ser Gly Cys Gln Leu Gln Lys Lys Glu Ile His Leu Tyr Gln Thr Phe
115 120 125

Val Val Gln Leu Gln Asp Pro Arg Glu Pro Arg Arg Gln Ala Thr Gln
130 135 140

Met Leu Lys Leu Gln Asn Leu Val Ile Pro Trp Ala Pro Glu Asn Leu
145 150 155 160

Thr Leu His Lys Leu Ser Glu Ser Gln Leu Glu Leu Asn Trp Asn Asn
165 170 175

Arg Phe Leu Asn His Cys Leu Glu His Leu Val Gln Tyr Arg Thr Asp
180 185 190

Trp Asp His Ser Trp Thr Glu Gln Ser Val Asp Tyr Arg His Lys Phe
195 200 205

Ser Leu Pro Ser Val Asp Gly Gln Lys Arg Tyr Thr Phe Arg Val Arg
210 215 220

Ser Arg Phe Asn Pro Leu Cys Gly Ser Ala Gln His Trp Ser Glu Trp
225 230 235 240

Ser His Pro Ile His Trp Gly Ser Asn Thr Ser Lys Glu Asn Pro Phe
245 250 255

MAILING ADDRESS OF SENDER (Please do not use customer number below):

BROWDY AND NEIMARK, P.L.L.C.
624 Ninth Street, NW, Suite 300
Washington, D.C. 20001-5303

PTO/SB/44 (09-07)
Approved for use through 08/31/2010. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.
(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,416,730

APPLICATION NO.: 10/511,722

ISSUE DATE : August 26, 2008

INVENTOR(S) : WALLACH et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Leu Phe Ala Leu Glu Ala Val Val Ile Ser Val Gly Ser Met Gly Leu
260 265 270

Ile Ile Ser Leu Leu Cys Val Tyr Phe Trp Leu Glu Arg Thr Met Pro
275 280 285

Arg Ile Pro Thr Leu Lys Asn Leu Glu Asp Leu Val Thr Glu Tyr His
290 295 300

Gly Asn Phe Ser Ala Trp Ser Gly Val Ser Lys Gly Leu Ala Glu Ser
305 310 315 320

Leu Gln Pro Asp Tyr Ser Glu Arg Leu Cys Leu Val Ser Glu Ile Pro
325 330 335

Pro Lys Gly Gly Ala Leu Gly Glu Gly Pro Gly Ala Ser Pro Cys Asn
340 345 350

Gln His Ser Pro Tyr Trp Ala Pro Pro Cys Tyr Thr Leu Lys Pro Glu
355 360 365

Thr

<210> 23
<211> 81
<212> PRT
<213> Artificial

MAILING ADDRESS OF SENDER (Please do not use customer number below):

BROWDY AND NEIMARK, P.L.L.C.
624 Ninth Street, NW, Suite 300
Washington, D.C. 20001-5303

PTO/SB/44 (09-07)
Approved for use through 08/31/2010. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,416,730

APPLICATION NO.: 10/511,722

ISSUE DATE : August 26, 2008

INVENTOR(S) : WALLACH et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

<220>
<223> Synthetic

<400> 23

Arg Ile Pro Thr Leu Lys Asn Leu Glu Asp Leu Val Thr Glu Tyr His
1 5 10 15

Gly Asn Phe Ser Ala Trp Ser Gly Val Ser Lys Gly Leu Ala Glu Ser
20 25 30

Leu Gln Pro Asp Tyr Ser Glu Arg Leu Cys Leu Val Ser Glu Ile Ala
35 40 45

Ala Lys Gly Gly Ala Leu Gly Glu Gly Pro Gly Ala Ser Pro Cys Asn
50 55 60

Gln His Ser Pro Tyr Trp Ala Pro Pro Cys Tyr Thr Leu Lys Pro Glu
65 70 75 80

Thr

<210> 24
<211> 81
<212> PRT
<213> Artificial

<220>
<223> Synthetic

MAILING ADDRESS OF SENDER (Please do not use customer number below):

BROWDY AND NEIMARK, P.L.L.C.
624 Ninth Street, NW, Suite 300
Washington, D.C. 20001-5303

PTO/SB/44 (09-07)
Approved for use through 08/31/2010. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.
(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,416,730

APPLICATION NO.: 10/511,722

ISSUE DATE : August 26, 2008

INVENTOR(S) : WALLACH et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Arg Ile Pro Thr Leu Lys Asn Leu Glu Asp Leu Val Thr Glu Tyr His
1 5 10 15

Gly Asn Phe Ser Ala Trp Ser Gly Val Ser Lys Gly Leu Ala Glu Ser
20 25 30

Leu Gln Pro Asp Tyr Ser Glu Arg Leu Cys Leu Val Ser Glu Ile Pro
35 40 45

Pro Lys Gly Gly Ala Leu Gly Glu Gly Pro Gly Ala Ser Pro Cys Asn
50 55 60

Gln His Ser Pro Tyr Trp Ala Ala Ala Cys Tyr Thr Leu Lys Pro Glu
65 70 75 80

Thr

<210> 25
<211> 81
<212> PRT
<213> Artificial

<220>
<223> Synthetic

<400> 25

Arg Ile Pro Thr Leu Lys Asn Leu Glu Asp Leu Val Thr Glu Tyr His
1 5 10 15

MAILING ADDRESS OF SENDER (Please do not use customer number below):

BROWDY AND NEIMARK, P.L.L.C.
624 Ninth Street, NW, Suite 300
Washington, D.C. 20001-5303

PTO/SB/44 (09-07)
Approved for use through 08/31/2010. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.
(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,416,730

APPLICATION NO.: 10/511,722

ISSUE DATE : August 26, 2008

INVENTOR(S) : WALLACH et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Gly Asn Phe Ser Ala Trp Ser Gly Val Ser Lys Gly Leu Ala Glu Ser
20 25 30

Leu Gln Pro Asp Tyr Ser Glu Arg Leu Cys Leu Val Ser Glu Ile Pro
35 40 45

Pro Ala Gly Gly Ala Leu Gly Glu Gly Pro Gly Ala Ser Pro Cys Asn
50 55 60

Gln His Ser Pro Tyr Trp Ala Pro Pro Cys Tyr Thr Leu Lys Pro Glu
65 70 75 80

Thr

<210> 26
<211> 81
<212> PRT
<213> Artificial

<220>
<223> Synthetic

<400> 26

Arg Ile Pro Thr Leu Lys Asn Leu Glu Asp Leu Val Thr Glu Tyr His
1 5 10 15

Gly Asn Phe Ser Ala Trp Ser Gly Val Ser Lys Gly Leu Ala Glu Ser
20 25 30

MAILING ADDRESS OF SENDER (Please do not use customer number below):

BROWDY AND NEIMARK, P.L.L.C.
624 Ninth Street, NW, Suite 300
Washington, D.C. 20001-5303

PTO/SB/44 (09-07)
Approved for use through 08/31/2010. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.
(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,416,730

APPLICATION NO.: 10/511,722

ISSUE DATE : August 26, 2008

INVENTOR(S) : WALLACH et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Leu Gln Pro Asp Tyr Ser Glu Arg Leu Cys Leu Val Ser Glu Ile Pro
35 40 45

Pro Lys Gly Gly Ala Leu Gly Ala Gly Pro Gly Ala Ser Pro Cys Asn
50 55 60

Gln His Ser Pro Tyr Trp Ala Pro Pro Cys Tyr Thr Leu Lys Pro Glu
65 70 75 80

Thr

<210> 27
<211> 81
<212> PRT
<213> Artificial
<220>
<223> Synthetic
<400> 27

Arg Ile Pro Thr Leu Lys Asn Leu Glu Asp Leu Val Thr Glu Tyr His
1 5 10 15

Gly Asn Phe Ser Ala Trp Ser Gly Val Ser Lys Gly Leu Ala Glu Ser
20 25 30

Leu Gln Pro Asp Tyr Ser Glu Arg Leu Cys Leu Val Ser Glu Ile Pro
35 40 45

MAILING ADDRESS OF SENDER (Please do not use customer number below):

BROWDY AND NEIMARK, P.L.L.C.
624 Ninth Street, NW, Suite 300
Washington, D.C. 20001-5303

PTO/SB/44 (09-07)
Approved for use through 08/31/2010. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,416,730

APPLICATION NO.: 10/511,722

ISSUE DATE : August 26, 2008

INVENTOR(S) : WALLACH et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Pro Lys Gly Gly Ala Leu Gly Glu Gly Pro Gly Ala Ser Pro Cys Asn
50 55 60

Gln His Ser Pro Tyr Ala Ala Pro Pro Cys Tyr Thr Leu Lys Pro Glu
65 70 75 80

Thr

MAILING ADDRESS OF SENDER (Please do not use customer number below):

BROWDY AND NEIMARK, P.L.L.C.
624 Ninth Street, NW, Suite 300
Washington, D.C. 20001-5303